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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

09/728,624

11/30/2000

Michael K. Eneboe

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12/03/2004

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EXAMINER

JUNTIMA, NITTAYA

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/728,624 | ENEBOE ET AL. | |
| | Examiner | Art Unit | |
| | Nittaya Juntima | 2663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 7, 10-13, 16 and 19 is/are rejected.
- 7) ☒ Claim(s) 4-5, 8-9, 14-15, and 17-18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the amendment filed on 7/12/2004.

1. The objections to the specification and claim informalities, and the rejection to claims 4-5 and 14-15 under 35 U.S.C. 112, second paragraph are withdrawn in view of applicant's amendment.
2. Claims 1, 6, 11, 16, and 19 are rejected under 35 U.S.C. 102 (e).
3. Claims 2-3, 6-7, 10, 12-13, and 16 remain rejected 35 U.S.C. 103 (a).
4. Claims 4-5, 8-9, 14-15, and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 11, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hahne et al. (USPN 6,538,416 B1).

Regarding claim 1, as shown in Fig. 1, Hahne et al. disclose an isochronous switched fabric network (network shown in Fig. 1 used for the communication of time-sensitive applications, col. 1, ll 17-21) comprising:

(a) A plurality of interconnected switched nodes (routers S1, R1, R3, R4, R5, and S3) forming multiple dimensions (not defined, reads on BR_Hops S1-R1, R1-R3, R3-R4, R4-R5, and R5-S3), each switched node comprising an upstream port with an input port and an output port (an upstream port reads on an inherent upstream port with an input port and an output port on each of the routers S1, R1-R5, and S3 which receives traffic from/transmit traffic to a router on its left, e.g. an upstream port of router R1 would receive a PROBE message 12 from router S1 and transmit a GRAFT message 16 to router S1) and a downstream port (a downstream port reads on an inherent downstream port with an input port and an output port on each of the routers S1, R1-R5, and S3 which receives traffic from/transmit traffic to a router on its right, e.g. an downstream port of router R1 would receive a GRAFT message 16 from router S3 and transmit a PROBE message 12 to router R3). See col. 3, ll 33-49, 57-58, 65-67, col. 4, ll 6-11, col. 6, ll 36-43, and col. 7, ll 3-7.

(b) A discovery facility for discovering a depth of each dimension (a number of BR_Hops from S1 to a visited router_i), and for discovering resources (required bandwidth) within each switched node (a PROBE message 12 used for discovering a number of hop count from S1 to S3 and for discovering required bandwidth within each of router S1, R1-R5, and S3 is generated by S1, col. 4, ll 40-45, 59-67 and col. 6, ll 32-col. 7, ll 1-2, therefore, it is inherent that S1 must include a discovery facility that generates a PROBE message).

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(c) An addressing facility, responsive to the discovery facility, for assigning a matrix address to each switched node (a matrix address is not defined, reads on the assigned router identification of each node S1, R1-R5, and S3 contained in a GRAFT message 16 sent from S3 to S1) (a GRAFT message 16 responding to a PROBE message containing router identifications of each node S1, R1-R5, and S3 is generated by S3, col. 7, ll 1-7 and 27-36, therefore, an addressing facility in a sink router, e.g. S3, must be included to assign router ID's contained in the GRAFT message 16).

(d) A resource reservation facility for reserving resources to establish a path through the network for transmitting an isochronous data stream (a resource reservation facility must be inherently included in a sink router S3 for generating a GRAFT message used for reserving resources, i.e. required bandwidth, in each of the routers S1, R1, R3, R4, R5, and S3 for transmitting time-sensitive applications such as multimedia-on-demand, col. 4, ll 45-46, col. 5, ll 4-15, col. 7, ll 3-7, 27-36, and col. 1, ll 17-21).

(e) A scheduling facility (the link scheduler) for scheduling isochronous data (time sensitive applications, col. 1, ll 17-21) transmitted through the switched fabric network (Fig. 1). See col. 5, ll 33-44.

Claim 11 is method claim corresponding to network claim 1, and therefore is rejected under the same reason set forth in the rejection of claim 1.

Per claim 19, Hahne et al. teach the step of leasing idle resources (required bandwidth) within a first switched node (S3) to a second switched node (R5) (the step of leasing idle resources must be included in order to enable the upstream router R5 to reserve the required bandwidth on a communication link between R5 and S3 when the GRAFT message arrives at R5

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and to provide transmission between the two routers, col. 5, ll 4-15, see also col. 6, ll 36-col. 7, ll 1-7).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-3, 6-7, 10, 12-13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahne et al. (USPN 6,538,416 B1).

Per claims 2-3 and 12-13, Hahne et al. teach an inherent discovery facility in a source router, e.g. S1, which generates a PROBE message as explained in claim 1 above (col. 4, ll 40-45, 59-67 and col. 6, ll 32-col. 7, ll 1-2), but fail to teach that the discovery facility comprises a central processor and the central processor is attached to one of the switched nodes.

However, it is well known in the art that a central processor such as a CPU is used for executing instructions and processing information/data. Therefore, it would have been obvious to one skilled in the art to include a central processor, e.g. a CPU, into a discovery facility in a router S1 of Hahne et al. to enable the discovery facility of router S1 to automatically execute its instructions and process the information/data without human intervention.

Per claims 6-7, and 16, Hahne et al. teach an inherent discovery facility in a source router, e.g. S1, which generates a PROBE message as explained in claim 1 above (col. 4, ll 40-45, 59-67 and col. 6, ll 32-col. 7, ll 1-2), but fail to teach that the discovery facility is distributed

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throughout the switched nodes and the discovery facility comprises a plurality of processors attached to the switched nodes.

It would have been obvious to one skilled in the art to distribute the discovery facility in the other switched nodes to enable them to also use the discovery facility to generate a PROBE message for discovering a path and resources within the network when they become a source router.

Moreover, it is well known in the art that a processor such as a CPU is used for executing instructions and processing information/data. Therefore, it would have been obvious to one skilled in the art to include that the discovery facility comprises a plurality of processors attached to the switched nodes to enable the routers to use the discovery facility to automatically execute its instructions and process the information/data without human intervention.

Per claim 10, Hahn et al. teach that each switched node (S1, R1-R5, and S3) comprises a leasing facility for leasing idle resources to other switched nodes (a leasing facility must be included in each of the routers S1, R1-R5, and S3 in Fig. 1 for leasing the idle bandwidth to the upstream router for resource reservation in order to enable the upstream router to reserve the required bandwidth on the communication link between the two routers when a GRAFT message travels along the path from the sink to the source routers, col. 5, ll 4-15, see also col. 6, ll 36-col. 7, ll 1-7).

However, Hahne et al. fail to teach that the resource reservation facility is distributed throughout the switch nodes.

However, Hahne et al. teach that the resource reservation facility is inherently included in a sink router, e.g. S3, for generating a GRAFT message used for reserving resources in routers

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S1, R1-R5, and S3, col. 4, ll 45-46, col. 5, ll 4-15, col. 7, ll 1-7, 27-36). Therefore, it would have been obvious to one skilled in the art to include that the resource reservation facility is distributed throughout the switch nodes to enable other routers to also use the resource reservation facility to generate a GRAFT message for bandwidth reservation when they become a sink router.

Response to Arguments

9. Applicant's arguments with respect to claims 1-3, 6-7, 10-13, 16, and 19 have been considered but they are not persuasive.

A. In the remarks, regarding claim 1, the applicant argues that Hahne does not disclose a discovery facility for discovering the depth of each dimension, and an addressing facility, responsive to the discovery facility for assigning a matrix address to each switched node.

In response, since neither a depth of each dimension nor a matrix is defined, therefore, they read on a number of BR_Hops from router S1 to a visited router_i, and router identification of each node S1, R1-R5, and S3 which must be assigned for a GRAFT message 16 sent from S3 to S1 in response to the received PROBE message 12, respectively. Since Hahn et al. teach that a PROBE message 12 used for discovering a number of hop count from S1 to S3 and for discovering required bandwidth within each of router S1, R1-R5, and S3 is generated by S1, col. 4, ll 40-45, 59-67 and col. 6, ll 32-col. 7, ll 1-2, therefore, it is inherent that S1 must include a discovery facility that generates a PROBE message. In addition, Hahn et al. also teach that a GRAFT message 16 responding to a PROBE message and containing router identifications of each node S1, R1-R5, and S3 is generated by S3, col. 7, ll 1-7 and 27-36, therefore, an

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addressing facility in a sink router, e.g. S3, must be included to assign router ID's contained in the GRAFT message 16.

It is noted that the features upon which applicant relies (i.e., a dept of each dimension and a matrix address described on page 6, ll 24+ of the specification) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

B. In the remarks, regarding claim 19, the applicant argues that Hahne does not teach the step of leasing idle resources within a first switched node to a second switched node and does not disclose or suggest that if a particular router cannot accommodate a bandwidth request to lease resources from another router in order to accommodate the request.

In response, Hahne et al. teach that when a router, e.g. S3, forwards the GRAFT message to an upstream router, e.g. R5, the upstream router reserves the required amount of bandwidth on the communication link between the two routers (col. 5, ll 8-11, see also col. 6, ll 36-col. 7, ll 1-7), therefore, it is inherent that the step of leasing idle resources within a first switched node (S3) to a second switched node (R5) must be included in order to enable the upstream router R5 to lease from a router S3 the idle resources within router S3, i.e. required bandwidth connected between router R5 and router S3, when the GRAFT message arrives at R5, and to facilitate communication between the two routers.

It is noted that the features upon which applicant relies (i.e. if a particular router cannot accommodate a bandwidth request to lease resources from another router in order to accommodate the request) are not recited in the rejected claim(s). Although the claims are

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interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

C. Claim 11 corresponds to claim 1 and remains rejected for the reasons set forth above.

Regarding dependent claims 2-3, 6-7, 10, 12-13, and 16, applicant fails to point out the error in the motivation in the rejection, therefore, they remain rejected.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

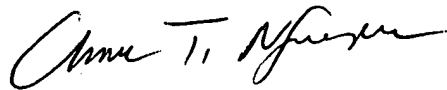
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
November 30, 2004
NJ



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